



Online Exclusive: Four Important Things You Need to Know about Hi-PoE

By Ronnie Pennington | May 12, 2015



Power over Ethernet (PoE) has been a disruptive force in the industry, changing the way system designers and installers deploy power for security applications. Instead of specifying conventional power supplies, integrators are increasingly using PoE network switches or incorporating mid-span injectors, which inject power into an Ethernet cable at a point between the switch and connected edge devices.

At present, IEEE 802.3af (PoE) and IEEE 802.3at (PoE+) are the only standards governing the delivery of power over Ethernet cables. PoE provides 15 watts, with 12.95 watts available to power over either the data pairs (mode A) or spare pairs (mode B), depending on the design of the power source. For devices that require more power, PoE+ provides up to 30 watts over either mode with 25.5 watts available. Although

there is no official standard for it today, there is also a third PoE option, referred to as Hi-PoE, which delivers 60 watts of power – twice the capacity of PoE+ – over the same infrastructure used for PoE and PoE+. Special mid-span injectors make Hi-PoE possible by allowing power via both mode A and mode B. Additionally, Hi-PoE can be delivered to the edge and distributed to multiple devices using solutions such as the eBridge200WPM from Altronix, which can be extremely cost-efficient.

Naturally, Hi-PoE can be very beneficial for numerous applications and system configurations. To ensure successful deployments of Hi-PoE, there are four key factors to consider:

1. Estimating Power Consumption: When designing and installing a system, it's easy to underestimate the power consumption of PoE security devices, which can quickly add up when there are multiple IP cameras, access control and other devices. With the additional power Hi-PoE provides, surveillance cameras and other edge devices can incorporate more features and functions to increase performance without taxing the power delivery capabilities of conventional PoE and PoE+.

2. Calculating Voltage Drop: While the total output of Hi-PoE is technically 60 watts, it's important to know that this is primarily delivered using two separate 30-watt PoE+ feeds transmitted from a single port in mode A and mode B simultaneously. This is mainly because there is not an established standard for Hi-PoE just yet. So while manufacturers know that "pure," single-feed Hi-PoE works, they may be cautious about incorporating it into their devices until a standard is in place, choosing instead to adhere to existing practices by delivering 60 watts over two PoE+ feeds.

So even though Hi-PoE device specifications may say 60 watts – which is completely accurate – it's crucial to account for voltage drop along CAT5E or CAT6 by taking into account distance limitations of PoE+ at 30 watts.

3. Identifying the Best Opportunities: The most ideal applications for Hi-PoE today are outdoor installations such as powering cameras and devices outfitted with heater/blowers. More power is needed to keep cameras warm or cool enough to operate properly in extreme environments. Powering the larger, more powerful heater/blowers required for these conditions over PoE+ traditionally required a separate power supply, introducing added equipment, infrastructure and installation costs. With double the wattage of PoE+, Hi-PoE can easily supply the power heater/blowers require without additional costs.

This is also true for IR lighting. The only way to integrate high-intensity IR illumination using PoE and PoE+ is by using an external illuminator with a separate power source.

Hi-PoE can provide adequate power without added infrastructure or equipment or costs. This allows manufacturers to incorporate higher-intensity illuminators into their cameras to increase camera capabilities in low-light or total darkness.

4. Choosing the Right Equipment: A number of mid-span injectors on the market provide Hi-PoE functionality, but mostly are manufactured for indoor use, meaning they are incapable of operating adequately in outdoor situations. For successful Hi-PoE deployment outdoors, it's critical to use an injector that is designed specifically to withstand the elements and provide adequate power.

There are a seemingly limitless number of system applications that can take advantage of Hi-PoE, including video surveillance, access control, IR illumination and many more. By delivering double the power of PoE+ without additional costs, Hi-PoE allows manufacturers to significantly increase the capabilities of cameras and other devices – leading to more powerful and effective security solutions. Once it becomes a recognized standard, Hi-PoE will see more widespread adoption, providing the extra power required to enable even more effective security system solutions without greater costs.

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